

IN THE CLAIMS

1. (previously presented) A method for cellular communications, characterized in that:

a file in electronic form with fragments of a digital geographical map of the vicinity is preliminary introduced into a control center of a cellular communications system, the map comprising coordinates and characteristics of base stations arranged in cells and geographical coordinates of the borders of the cells, wherein in the process of radio communications, data on the location of a corresponding mobile station for communication therewith are determined with the aid of a receiver of a satellite location determination system, which receiver is built in a mobile station, and are transmitted through a base station to the control center of the cellular communications system, and the file of a fragment of the digital geographical map is transmitted from the control center of the cellular communications systems through a corresponding base station to a mobile station, the map comprising coordinates and characteristics of the base station of that cell where this mobile station is, coordinates and characteristics of the base station of neighboring cells with coordinates of their borders; and

then, in the mobile station, a comparison of current data of its location and the coordinates of cell borders is carried out when there is a transition of the mobile station to another cell - "handover" - and/or when there is a transition from one cellular communications network to another - roaming - data on completion of the "handover" or conduction of the roaming and changes of the working parameters of communications channels and produced in the mobile station and transmitted to a corresponding control center of the cellular communications system.

2. (original) The method according to claim 1, characterized in that synchronization of operation of the mobile and base stations is carried out in accordance with signals of a satellite location determination system.

3. (previously presented) The method according to claim 1, characterized in that the dimension of the fragment of the geographical map transmitted to the mobile station and the periodicity of transmission of data on its location by that mobile station to the control center of the cellular communications system are changed depending on the speed of movement of the mobile station.

4. (previously presented) The method according to claim 1, characterized in that the current data on the location of the mobile station are used to control parameters of adaptive multibeam antenna systems of base stations communicating with the mobile station, including parameters for directing a directional characteristic of antenna systems toward the mobile station.

5. (previously presented) The method according to claim 1, characterized in that microcells within a cell that have working communication parameters different from working communication parameters of the instant cell, in particular other types of radio interfaces, protocols, communication standards, are dedicated, wherein coordinates of border and working parameters of these microcells, recorded in the control center of the cellular communications system, are transmitted through corresponding base stations to mobile stations located in the microcells.

6. (previously presented) The method according to claim 1, characterized in that the height of location of a mobile station above the surface of the earth, in respect to which corresponding cells or microcells are dedicated, is selected as one of the working parameters, and a vertical "handover" is provided for.

7. (previously presented) The method according to claim 1, characterized in that the power level of transmitters of mobile and base stations are adjusted depending on their distance from one another on the basis of location data of the mobile and base station, and also of digital geographical maps, used in the control center of the cellular communications system.

8. (previously presented) The method according to claim 1, characterized in that during the transmission of the file of the fragment of the digital geographical map from the control center of the cellular communications system through a base station to a corresponding mobile station, adaptation of the dimensions and configuration of the cells and also conditions providing for "handover" to a load created by mobile stations in a cell are carried out.

9. (previously presented) The method according to claim 1, characterized in that depending on the location of a mobile station in a definite cell or definite zone of cellular network communication, of each mobile station, the priorities of access to communications services of the extreme qualitative communication characteristics are determined or access to the communications services or a portion of the communications services on separate sections of the cellular communications zone or the cell is eliminated.

10. (previously presented) The method according to claim 1, characterized in that a pointwise or zone tariffing of communication services provided to clients is provided with an arbitrary configuration of the zones.

11. (previously presented) The method according to claim 1, characterized in that current data on the location of a mobile station, which are available to a mobile client of a cellular network on a global scale, are used to select a mobile communications network and an accessible type of service within that network by a corresponding programming of the mobile station by a client or operator of mobile communications, including taking into account tariffs for communication services in communication networks of different operators.

12. (previously presented) The method according to claim 2, characterized in that the current data on the location of the mobile station are used to control parameters of adaptive multibeam antenna systems of base stations communicating with the mobile station, including parameters for directing a directional characteristic of antenna systems toward the mobile station.

13. (previously presented) The method according to claim 3, characterized in that the current data on the location of the mobile station are used to control parameters of adaptive multibeam antenna systems of base stations communicating with the mobile station, including parameters for directing a directional characteristic of antenna systems toward the mobile station.

14. (previously presented) The method according to claim 2, characterized in that microcells within a cell that have working communication parameters different from working communication parameters of the instant cell, in particular other types of radio interfaces, protocols, communication standards, are dedicated, wherein coordinates of border and working parameters of these microcells, recorded in the control center of the cellular communications system, are transmitted through corresponding base stations to mobile stations located in the microcells.

15. (previously presented) The method according to claim 3, characterized in that microcells within a cell that have working communication parameters different from working communication parameters of the instant cell, in particular other types of radio interfaces, protocols, communication standards, are dedicated, wherein coordinates of border and working parameters of these microcells, recorded in the control center of the cellular communications system, are transmitted through corresponding base stations to mobile stations located in the microcells.

16. (previously presented) The method according to claim 2, characterized in that the height of location of a mobile station above the surface of the earth, in respect to which corresponding cells or microcells are dedicated, is selected as one of the working parameters, and a vertical "handover" is provided for.

17. (previously presented) The method according to claim 3, characterized in that the height of location of a mobile station above the surface of the earth, in respect to which corresponding cells or microcells are dedicated, is selected as one of the working parameters, and a vertical "handover" is provided for.

18. (previously presented) The method according to claim 2, characterized in that the power level of transmitters of mobile and base stations are adjusted depending on their distance from one another on the basis of location data of the mobile and base station, and also of digital geographical maps, used in the control center of the cellular communications system.

19. (canceled)

20. (previously presented) In a method for cellular communications, the improvements comprising:

introducing into a control center of a cellular communications system an electronic file of a digital geographical map of geographical coordinates of borders of cells defined by base stations of the cellular communications system having coordinates and characteristics;

determining a location of a mobile station of the cellular communication system with a receiver of a satellite location determination system in the mobile station;

transmitting the location of the mobile station through one of the base stations to the control center;

transmitting from the control center through the one of the base stations to the mobile station the coordinates and characteristics of the one of the base stations and, as determined from the map, the coordinates and characteristics of at least one of the base stations neighboring the one of the base stations and geographical coordinates of at least the one of the borders of the cell thereof with the cell of the one of the base stations; and

then, in the mobile station, comparing another determination of a current location of the mobile station at least with the geographical coordinates of the one of the borders of the cell of the neighboring base station to determine a transition of the mobile station across the border of the neighboring base station for use from the mobile station of the coordinates and characteristics of the neighboring base station.

21. (new) A method for cellular communications in accordance with which mobile station are previously provided with receivers of satellite location determination system and controllers for storing and processing data of a digital geographical map, in a control center of a cellular communications system is generated a file with fragments of the digital geographical map for base stations, wherein the fragment for each base station comprises coordinates of borders of its cell, coordinates of borders of neighboring cells, their operating frequencies, codes and communications parameters, these fragments are transmitted to corresponding base stations for recording into controllers of these base stations, and in

process of radio communications each base station at first entering its sell of some mobile station, which establishes a communication with this base station, transmits to this mobile station a corresponding fragment of the digital geographic map for recording in its controller, the mobile station periodically compares data of its location, being received with help of its receiver of the satellite location determination system, with the stored fragment of the digital geographic map and when crossing the border of the cell of its location the mobile station produces data for "handover" or "roaming" and independently transits to the operating frequency, being contained in the above fragment of the digital geographic map, code and communications parameters of the base station of the new cell into which it transits thereby realizing "handover", and when transiting to other cellular communications network realizing "roaming", after that the mobile station transmits to a corresponding control centre of the cellular communications system data on completion of the "handover" or "roaming" and on change of operating parameters of communications channels.